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A New Phlaeothripine Genus and Species (Thysanoptera, Phlaeothripidae) from Japan

With 5 Text-figures

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ABSTRACT *Mychiothrips fruticola* gen. et sp. nov. is described and illustrated. The new genus is characterized by very short maxillary stylets, undeveloped praepectus, and armed fore femora, each with a stout tooth and a series of tubercles. This species occurs on bamboo or allied Gramineae plants. The genus *Veerabahuthrips*, also occurring on bamboo, is most closely related to this genus, and the two genera probably belong to the tribe Hoplothripini.

Undetermined four specimens of a phlaeothripine species which has enlarged fore femora, each with an inwardly projecting large tooth and a series of small tubercles, are preserved in the Kurosawa Collection of the National Institute of Agricultural Sciences, Tokyo. Regrettably these specimens are mounted in a medium so darkened that they are not suitable for accurate study. Recently, we obtained fresh materials of the same species several times from central Honshu and Shikoku, Japan.

Mychiothrips gen. nov.

Head much longer than wide, vertex subconical, cheeks thickened at apical portion; interocellar and postocellar setae minute, postocular setae well developed, situated near cheeks behind eyes; eyes well developed, somewhat protruding; ocelli well developed at least in the macropterous form; antennae each eight segmented, sense-cones slender and setiform, sensorium of segment II situated in apical

third; mouth-cone short and broadly rounded, maxillary stylets very short, not retracted far into head capsule, V-shaped, maxillary bridge absent. Pronotum well developed; epimeral suture complete; praepectus absent, probasisternum well developed; fore legs stout in both sexes, fore femora enlarged, each with a stout tooth and some small tubercles, fore tarsi each armed with a stout tooth; wings not distinctly constricted medially, almost parallel-sided. Pelta bell-shaped, abdominal segments II-VII each with two pairs of sigmoid wing-retaining setae; tube shorter than head.

Type-species: *Mychiothrips fruticola* sp. nov.

Massive and armed fore legs are commonly found not only in the Idolothripinae but also in the Phlaeothripinae. However, only a few genera which comprise species with developed legs have short, weak maxillary stylets. *Lichanothrips* Mound has maxillary stylets wide apart, low in head, like this new genus, but it differs in having praepectus and stout pronotal median apodeme. *Panoplothrips* Moulton also has similar maxillary stylets, but it is distinguished from the present genus by the comparatively short head, short postocular setae and pronotal shield. *Euoplothrips* Hood and *Warithrips* Mound each has moderately short maxillary stylets, but the former lacks fore wing duplicated cilia and fore wings of the latter have a distinct median constriction. The genus *Grypothrips,* in which the praepectus is lacking, has similar fore legs and is distinguished from this new genus by having moderately long and almost parallel maxillary stylets when retracted and small probasisternum.

Similar short maxillary stylets occur in the haplothripine genus *Antillothrips* Stannard, in which the praepectus tends to develop weakly or lacks entirely, but it does not have armed fore legs (Stannard, 1957; Pitkin, 1977).

This new genus is most closely related to the genus *Veerabahuthrips* Ramakrishna. Both the genera have head much longer than wide, armed fore legs, very short maxillary stylets, well developed pronotum, medially scarcely narrowed fore wing, a few duplicated cilia of fore wing and bell-shaped pelta. In addition, both *Veerabahuthrips* and *Mychiothrips* have well developed probasisternum and have no praepectal plates. However, *Veerabahuthrips* is distinguished from *Mychiothrips* by the short antennae, weak postocular setae, and shortened fore tibia.

It is considered that the tubuliferous thrips with maxillary stylets weak, short and not retracted far into the head are more primitive than those with diversified maxillary stylets in length, width and flexibility (Stannard, 1957; Mound, 1970). However, the above-mentioned related genera except for haplothripine *Antillothrips* have largely developed prothorax mostly with a median apodeme, almost parallel-sided wings which are often observed in the tribe Hoplothripini. On the other hand, the genus *Veerabahuthrips* has been treated as a member of the subfamily Idolothripinae (Ananthakrishnan, 1964; Jacot-Guillarmod, 1978),

but the genus has bell-shaped pelta and such short, slender maxillary stylets instead of band-like ones which are one of the important subfamilial criteria. *Mychiothrips* as like as *Veerabahuthrips* probably belong to the tribe Hoplothripini of the subfamily Phlaeothripinae.

Mychiothrips fruticola sp. nov.

Female (*macropterous*). Length 2.6–3.3 mm (distended). Uniformly dark brown; posterior part of thorax and anterior part of abdomen somewhat lighter; all femora dark brown, concolorous with body, fore tibiae yellowish, tinged with brown, mid and hind tibiae dark brown except for the extreme apices yellowish; wings shaded with pale brown; antennal segments I, VII and VIII dark brown, segment II dark brown with paler apex, segments III, IV and V yellow, segment VI yellow, gradually darkened to brownish yellow towards apex; prominent body setae brownish yellow, wing-retaining setae darker.

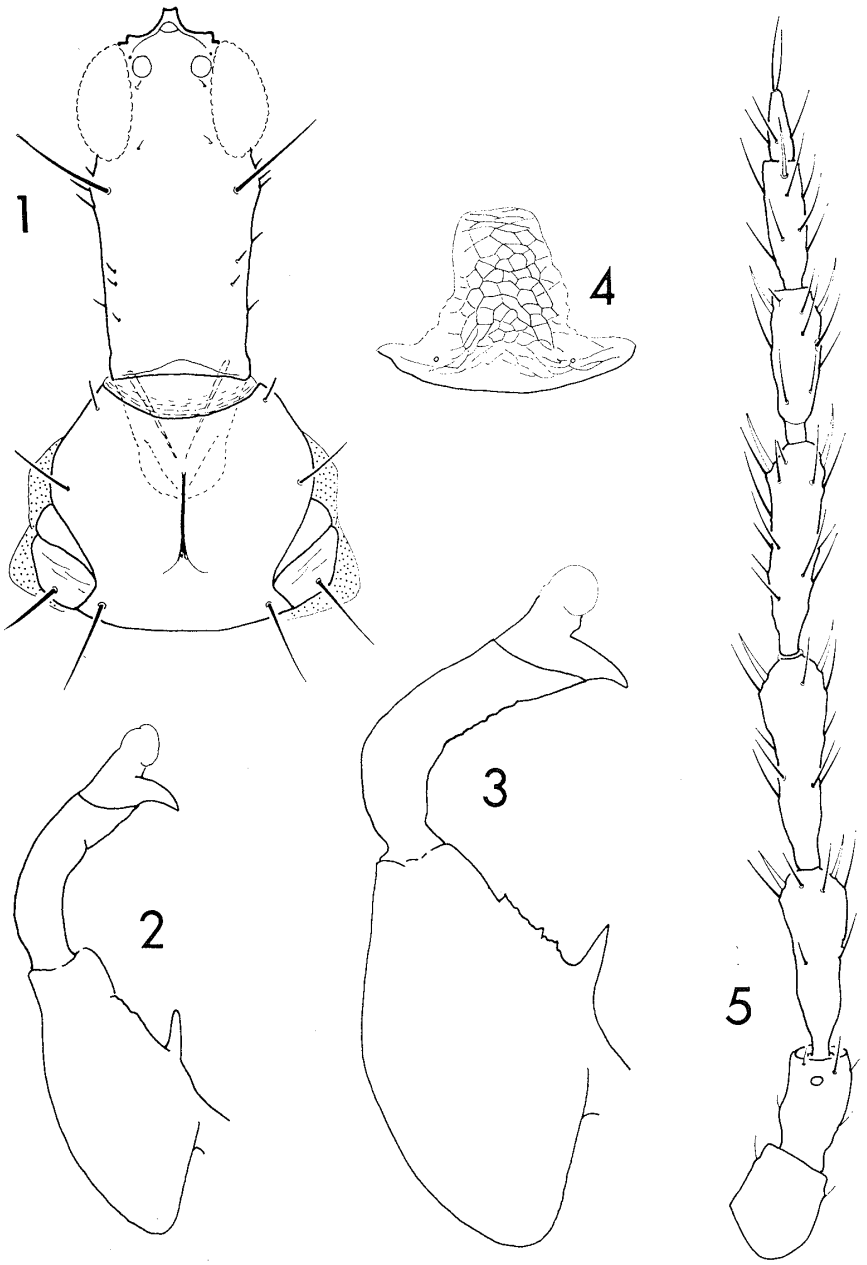
Head 1.6–1.8 times as long as the width across eyes; postocular setae shorter than eye, sharply pointed at tips; cheeks thickened at apical fourth, with two or three short stout setae; dorsum of head smooth, with weak sculptures near base. Eyes about one-third as long as head, or a little longer, about twice as long as wide. Ocelli 23–30 μm in diameter; posterior pairs 25–35 μm apart from anterior one, 28–32 μm apart from each other. Antennae slender, segment VIII not constricted basally; segments IV and V long, subequal in length; segments III and V each with two sense-cones, inside and outside (1+1), segment IV with three sense-cones, inner one and outer two (1+2), segment VI with three sense-cones, inner one, outer one and dorsal small one ($1+1^{+1}$).

Pronotum 0.6–0.65 times as long as head, with a short median line, not distinctly sculptured; anteromarginal and anteroangular setae minute, posteroangulars and epimerals well developed, not pointed at apices. Fore femora enlarged, much larger than head capsule in the large individuals, each with a subbasal stout tooth and median irregular crenulations or tubercles at inner side; fore tibiae stout, slightly widened anteriorly; fore tarsal tooth very stout. Median setae of metathorax weakly developed, very short and slender. Fore wings each with 7–16 accessory cilia; subbasal wing setae almost pointed, S_1 the shortest, S_3 the longest.

Pelta distinctly reticulated, with a pair of discal pores. Setae B_1 of abdominal tergite IX shorter than setae B_2 of IX; tube 0.75–0.78 times as long as head, about three times as long as the width of base; terminal tube setae a little longer than tube.

Measurements of the largest female (*smallest female*) *in* μm.

Total body length 3300 (2600). Head length 405 (315), width across eyes 227 (200), width across base 165 (140); eye length 140 (115), width about 65 (55). Pronotum length 260 (191), width 310 (245), fore femur length 350 (260), width about 260 (150); fore wing length 1490 (1100), width at middle 112 (75); pelta



Figs. 1–5. *Mychiothrips fruticola* gen. et sp. nov., female. —— 1. Head and prothorax. ——2. Left fore leg of small female. ——3. Left fore leg of large female. ——4. Pelta. —— 5. Left antenna.

length 125 (100), width 180 (140). Abdominal tergite II length 165 (120), width 470 (365); IV length 185 (130), width 475 (370); IV length 200 (145), width 450 (345); VIII length 185 (135), width 355 (280); IX length 160 (125), width 250 (195); X length 300 (245), basal width 101 (85), apical width 50 (43).

Length of setae: Postoculars 110–120 (about 130). Pronotal posteroangulars

110–115 (75); epimerals 110–115 (85); midlaterals 60 (less than 40). Subbasal wing setae S_1 65–70 (40); S_2 105–115 (80–85); S_3 155–160 (120–125). B_1 of abdominal tergite II 125–130 (100); B_1 of IV 130–132 (108–110), B_2 of IV 120 (85–90); B_1 of VI 125 (95), B_2 of VI 160 (125–130); B_1 of VIII 75–80 (55–70), B_2 of VIII 140–145 (110–115). Terminal tube setae 320–350 (260–265).

Antenna: Total length about 650 (550).

	I	II	III	IV	V	VI	VII	VIII
Length	62	23	103	115	115	87	75	42
	(52)	(55)	(85)	(93)	(90)	(70)	(58)	(40)
Width	50	37	38	35	31	28	23	13
	(41)	(31)	(34)	(33)	(28)	(23)	(21)	(13)

Male (*macropterous*). Length 2.2–2.4 mm (distended).

Very similar in colour and general structures to the female except for the followings; Body smaller; head 1.45–1.6 times as long as the width across eyes; fore wings each with 7–8 accessory cilia; antennal segment V sometimes darkened.

Measurements of the male in μm. Body length 2230. Head length 290, width across eyes 185; eye length 115, width 60. Pronotum length 180, width 235; fore femur length 205, width 115; fore wing length 1050; pelta length 90, width 125. Abdominal tergite II length 115, width 350; IV length 120, width 355; VI length 125, width 165; X length 205, basal width 75, apical width 40.

Length of setae: Postoculars about 60. Pronotal posteroangulars 75–85; epimerals 75–80; midlaterals less than 20. Subbasal wing setae S_1 40–45; S_2 ?; S_3 110–120. B_1 of abdominal tergite II 85–95; B_1 of IV 95–100, B_2 of IV 70–80; B_1 of VI 85, B_2 of VI 130; B_1 of VIII about 40, B_2 of VIII 100–110; B_1 of IX 143–145, B_2 of IX 190–215. Terminal tube setae 250–265.

Antenna: Total length about 500.

	I	II	III	IV	V	VI	VII	VIII
Length	40	50	75	82	81	62	53	38
Width	38	30	32	30	25	23	22	12

Holotype ♀: Mukogaoka, Kanagawa Prefecture, on *Miscanthus* leaf, 6–VI–1976, leg. S. Okajima (Okajima no. 106).

Paratypes: 1 ♀, same data as the holotype (Okajima no. 106); 1 ♀, 3–VI–1976, 1 ♀, 28–V–1976, same locality as the holotype, leg. S. Okajima (Okajima no. 102 and 108); 1 ♀, same locality as the holotype, on *Sasa paniculata* leaf, 4–XII–1975, leg. S. Okajima (Okajima no. 87); 1 ♀, Mt. Kiyosumi, Chiba Pref., on *Sasa paniculata* leaf, 8–XI–1972, leg. S. Okajima (Okajima no. 47); 1 ♀, nr. Ashizuri-misaki, Kochi Pref., on wing, 27–X–1972, leg. N. Gokan (Okajima no. 39); 2 ♂♂ 2 ♀♀, Campus of the University of Tsukuba, Ibaraki Pref., on *Pleioblastus* leaf, 11–X–1974, leg. K. Haga (Haga nos. 1661–1664); 10 ♀♀, Campus of the University of Tsukuba., on *Pleioblastus* leaf, 19–VI–1975, leg. K. Haga nos. 1646–1655).

Other materials examined. 1 ♂, Hatano, Oonemura, sweeping on grass, 3–VI–1923, leg. Tei Ishii (Kurosawa no. 169); 1 ♀, Kanagawa, Nanasawa, in sweeping material, 1–VI–1931), leg. T. Ishii (Kurosawa no. 188); 1 ♂, Nagasaki, 28–XI–1924, leg. T. Ishii (Kurosawa no. 252); 1 ♂, Yokohama, Yamanote, in flying, 10–VII–1940, leg. M. Kurosawa (Kurosawa no. 1055).

Two species of the closely related genus, *Veerabahuthrips, V. bamboosae* Ramakrishna and *V. longicornis* Okajima, were collected on bamboo leaves from India and S. Thailand respectively. Similarly the present species inhabits bamboo of allied plants in contrast with *Acacia, Casuarina* and other mesophytic trees of Australian thrips of the related genera. It seems that the species is predacious on those plants, though its life-history is still unknown.

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